

# José (Zé) Vinícius de Miranda Cardoso

Undergraduate Student  
Federal University of Campina Grande, Brazil  
Department of Electrical Engineering  
Campina Grande, Brazil

jvmirca@gmail.com  
<http://mirca.github.io>  
GitHub: @mirca

## Education

*Undergraduate in progress in Electrical Engineering* 2011 –  
**Federal University of Campina Grande, Brazil**  
Advisor: Dr. Marcelo Sampaio de Alencar

*Nanodegree in Machine Learning Engineering* 2018  
*Nanodegree in Artificial Intelligence*  
**Udacity**

*Visiting Student – Electrical Engineering and Computer Science* Fall 2014 – Spring 2015  
**The Catholic University of America, USA**  
**University of Maryland at College Park, USA**  
Brazil Scientific Mobility Program, Fully funded scholarship recipient  
Advisors: Dr. Duilia F. de Mello and Dr. Jandro L. Abot

*Technical Degree in Informatics* 2007 – 2010  
**Federal Institute of Education, Science and Technology of Paraíba, Brazil**  
Advisor: Dr. Carlos Danilo Miranda Regis

## Professional Experience

*Scientific Software Engineering Intern* Mar 2017 – Feb 2018  
**NASA Ames Research Center, Silicon Valley, USA**  
Kepler/K2 Guest Observer Office  
Mentor: Dr. Geert Barentsen

*Google Summer of Code Student* Summer 2016  
**The AstroPy Project**  
Project title: Point spread function photometry for fitting overlapping stars simultaneously  
Mentors: Dr. Erik Tollerud, Dr. Hans Moritz Günther, and Dr. Brigitta Sipőcz

*Undergraduate Teaching Assistant* Spring 2015  
*Probability and Statistics for Electrical Engineering and Computer Science*  
**Federal University of Campina Grande, Brazil**

*Undergraduate Research Assistant* Fall 2015 – Fall 2016  
**Institute for Advanced Studies in Communications, Brazil**  
Mentor: Dr. Marcelo Sampaio Alencar

*Undergraduate Guest Researcher* Summer 2015  
**National Institute of Standards and Technology, USA**  
Center for Nanoscale Science and Technology  
Nanofabrication Research Group  
Mentor: Dr. Marcelo Ishihara Davanço

*Undergraduate Research Assistant* 2011 – 2014  
**Institute for Advanced Studies in Communications, Brazil**  
Mentor: Dr. Marcelo Sampaio Alencar

## Volunteering Experience

Google Summer of Code Mentor for the AstroPy Project

Summer 2018

Project title: Develop astropy tutorials on how to fit data

Reviewer for the Brazilian Conference on Signal Processing and Telecommunications

Summer 2018

## Projects

### NASA Transiting Exoplanet Survey Satellite (TESS) Proposal

2018

Performing The Most Comprehensive Exoplanet Survey Of The Southern Sky With TESS Full Frame Images

Principal Investigator: Dr. Benjamin Montet (University of Chicago)

Co-Investigators: Dr. Dan Foreman-Mackey (Flatiron), Dr. Jessie Christiansen (IPAC/Caltech), Dr. Rodrigo Luger (U. of Washington), Dr. Dan Scolnic (U. of Chicago), and Dr. Christina Hedges (NASA Ames)

Undergraduate students: José Vinícius de Miranda Cardoso (Universidade Federal de Campina Grande) and Nicholas Saunders (U. of Washington)

### National Institute of Science and Technology, USA

Parameter estimation for photoactivated localization microscopy

Summer 2015

### Institute of Advanced Studies in Communications, Brazil

Statistical characterization of free space optical channels

2016 – 2016

Signal detection in generalized fading channels

2015 – 2016

Multiplatform software for objective stereoscopic image and video quality assessment

2013 – 2014

Stereoscopic video quality estimation using objective algorithms

2012 – 2013

Development of a novel objective algorithm for video quality assessment

2011 – 2012

## Selected Publications

1. **Cardoso, J. V. M., et. al.** On the Performance of the Energy Detector Subject to Impulsive Noise in  $\kappa - \mu$ ,  $\alpha - \mu$ , and  $\eta - \mu$  Fading Channels. *Tsinghua Science and Technology*, 2017.
2. Davanco, M., I., Liu, J., Sapienza, L., Zhang, C. Z., **Cardoso, J., V., M.**, Verma, V., Mirin, R., Nam, S. W., Srinivasan, K. Heterogeneous integration for on-chip quantum photonic circuits with single quantum dot devices. *Nature Communications*, 2017.
3. **Cardoso, J. V. M., et. al.** An approximate exponentiated Weibull envelope-phase distribution. *IEEE International Symposium on Antennas and Propagation/USNC-URSI National Radio Science Meeting*, Farjado, Puerto Rico, 2016. *Travel grant recipient.*

For a complete list of my publications, please refer to <https://mirca.github.io/publications>.

## Awards

1. Selected, with full travel funding, to the workshop *Preparing for TESS*, New York City, USA, 2018
2. Selected to the workshop *Python in Astronomy*, Leiden, The Netherlands, 2017
3. Selected, with full travel funding, to the São Paulo School of Advanced Science on Nanophotonics, São Paulo, Brazil, 2016
4. Travel Grant Recipient, IEEE Antennas and Propagation Symposium, Puerto Rico, 2016
5. Young Author Recognition Award, International Telecommunication Union, ITU Kaleidoscope 2015
6. Young Author Recognition Award, International Telecommunication Union, ITU Kaleidoscope 2014
7. The paper "SQUALES: A QT-based Application for Full-Reference Objective Stereoscopic Video Quality Measurement" was one of the six papers nominated for Best Paper Award at ITU Kaleidoscope 2014

## Competencies

**Coding:** Python (numpy, scipy, pandas, scikit-learn), R, git/GitHub, TensorFlow, C/C++, Unix shell, MATLAB

**Courses:** Stochastic Processes, Information Theory, Random Signal Theory, Estimation and Detection Theory

**Languages:** Native Portuguese, Fluent English

## Additional Information

- Member of the AstroPy software development community
- Participated in the IEEEExtreme 24-Hours Programming Competition in 2013, 2014, 2015, and 2016
- Student of the week on the IEEE Students Facebook webpage
- Participated at the *PSF Photometry and Software Workshop*, Space Telescope Science Institute, Baltimore, 2017
- Attended NASA Ames Machine Learning Workshop, 2017